



FIRE CREW FIREFIGHTER TRAINING

Procedures Handbook 4200

FIREFIGHTER SURVIVAL

TOPIC: LOOKOUTS, COMMUNICATIONS, ESCAPE ROUTES, AND SAFETY ZONES

TIME FRAME: 1:00

LEVEL OF INSTRUCTION: Level II

BEHAVIORAL OBJECTIVE:

Condition: Given a written quiz

Behavior: The student will confirm a knowledge of lookouts, communications, escape routes, and safety zones

Standard: With a minimum 70% accuracy

MATERIALS NEEDED:

- Writing board with markers/erasers
- Appropriate audio visual equipment and screen
- Student Information Sheet 4203.3-1
- Topic Quiz

REFERENCES:

- CDF Health and Safety Handbook 1700
- Fire Management Notes, 1991, Volume 52, Number 4
- LCES and Other Thoughts, Paul Gleason

PREPARATION: The common thread between all fire fatalities and near misses in the past twenty years is lack of or inadequate lookouts, communications, escape routes and safety zones (LCES). LCES is a systems approach. All components of LCES must be used. The system is interdependent of all components. Awareness of each component and how they interact is necessary to provide the safest working environment.



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I. COMMON CAUSES OF WILDLAND FIRE FATALITIES

- A. Fire weakened timber, snags, limbs and broken tops
- B. Rolling rocks
- C. Entrapment by fire

II. SAFETY CHECK LISTS

- A. There are many safety check lists which wildland firefighters are tasked to follow during fireline assignments
 - 1. 10 Standard Fire Orders most widely known
 - a) Around since early 1950s
 - 1) Firefighters are injured and die on the wildland fire line each year because they do not follow the safety check list
- B. Causes for overlooking items on the safety check lists
 - 1. Ignorance
 - a) Lack of experience

What are the most common causes of wildland fatalities?

What are reasons for failure to adhere to the 10 Standard Fire Orders?



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<ol style="list-style-type: none">1) Experienced based decision making<ul style="list-style-type: none">• Doing what is comfortable• Firefighters do what they are comfortable with when they do not know what else to do• Unfortunately normal courses of action may not be appropriate in critical situations2) Training is NOT experience! It is imperative for <u>line supervisors</u> making critical decisions to have the appropriate experience base for the position held3) Other agencies may or may not have an appropriate level of wildland firefighting experience<ul style="list-style-type: none">• Communicate! Ask questions <p>2. Training</p> <ol style="list-style-type: none">a) Lack of training - equals deficiencies in safety practicesb) Poor quality of training - equals deficiencies in safety practicec) Training on safety checklists is conditioning. When lacking experience we can compensate by repetitive realistic training/drill on proper responses to bad situations <p>C. Distractions</p> <ol style="list-style-type: none">1. Personal/Physical	



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<ul style="list-style-type: none">a) Fatigue - long arduous shifts with little or no sleep for extended durationb) Stress - away from home, family concerns, money concerns, substance abuse, or other personal crisesc) Fear - of injury/death or the "unknown"d) Working in atmospheres with high carbon monoxide levels for long duration <ul style="list-style-type: none">2. Communications problems3. Public interference4. Overwhelming numbers of safety checklist items for the human mind to recognize and comprehend<ul style="list-style-type: none">a) This is very true in periods of high stress <p>D. Competition</p> <ul style="list-style-type: none">1. Some competition is healthy but history has shown when carried to the extreme it can be disastrous2. This probably was one of the contributing factors on wildland incidents such as the Loop Fire, South Canyon Fire, Calabasas Fire <p>E. Arrogance, excessive pride or self-confidence</p> <ul style="list-style-type: none">1. Believing we are invincible will kill us<ul style="list-style-type: none">a) Fear of ridicule for showing concernsb) Heroics should not determine the success or failure of an operation	



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- F. Blind faith - Following the lead of others based on respect and/or stature and/or position within the fire service
1. Following supervisors directives out of respect and ignoring our safety checklists can be deadly
 2. All crew members are responsible for safety
 3. The fire service tends to be very rank conscious, sometimes to the extreme, including ignoring safety
 - a) It is everyone's responsibility to communicate safety considerations
 4. "Abilene Paradox" – The inability to manage agreement – whereby
 - a) Organization members individually agree in private about the nature of the situation or problem facing the organization, but do not communicate this in the group setting
 - b) Members individually agree in private about what steps would be required to cope with the situation or problem, but will not express this if they think the group will disagree
 - c) Organization members fail to accurately communicate their desires/or beliefs to one another in the group environment

Why is it important to manage agreement among organization members?



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<ul style="list-style-type: none">1) In fact they do just the opposite, thereby leading one another into misperceiving the collective realityd) With such invalid and inaccurate information, organization members make collective decisions that lead them to take actions contrary to what they want to do, thereby arriving at results that are counterproductive to the organization's intent and purposese) As a result of taking actions that are counterproductive, fire crews may be placed in an unsafe situationf) If organization members do not deal with the inability to manage agreement, the cycle repeats itself with greater intensityg) The solution: if you have a concern, communicate it to the group <p>NOTE: Hand out Student Information Sheet 4203.3-1, LCES</p> <p>III. THE USE OF LCES</p> <p>A. This is a simple system incorporating the essential items of the 10 Standard Fire Orders and is a useful tool for many types of incidents or tactics on an incident</p> <ul style="list-style-type: none">1. Roof ventilation2. Vehicle extrication3. Technical rescues4. Hazardous materials incidents5. Many other high risk assignments	



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- B. Regardless of what is happening on the incident, distractions, competition, pride etc., consistently training with and applying the LCES principals can help compensate and keep firefighters from becoming a statistic

IV. LOOKOUTS

- A. Train lookouts to observe the wildland fire environment and to recognize and anticipate fire behavior changes and other risks and hazards
- B. It is critical that lookouts can see firefighters, risks and hazards
1. It is important that fire crews know that this position has been filled. Announce to Division Supervisor and on the Tactical (TAC) Net
- C. Lookouts must understand weather and fire behavior and know when to announce the alert
- D. Lookouts must understand how assignment relates to overall task and LCES
- E. Position and formally assign lookout(s) where both the hazard and the firefighters can be seen. The determination of how many lookouts to utilize should factor:
1. Terrain
 2. Fuel type/loading/size
 3. Fire size
 4. Behavior
 5. Weather

What knowledge should your lookouts posses?



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<ul style="list-style-type: none">6. Crew location7. Changes in crew location during the shift8. Length of anticipated line and its location9. Number of crews10. Types of hazards<ul style="list-style-type: none">a) Falling or rolling rocksb) Air dropsc) Falling treesd) Felling operatione) Dozersf) Adverse fire behavior signsF. Every firefighter has the authority and responsibility to warn others of threats to safetyG. Update position and numbers of lookouts throughout the shift, as neededH. The lookout is not established until communication with crews has been confirmedI. Remember! Lookouts don't stop at the fireline. They include:<ul style="list-style-type: none">1. Weather forecaster2. Anticipated changes included in the Incident Action Plan (I.A.P)3. Observations from adjoining forces	



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V. COMMUNICATIONS

- A. Face to face
 - 1. Best and most common method
 - 2. Used to deliver pertinent messages among crew members
- B. Ensure that the lookout(s) being utilized have communication with those whom they are to warn
- C. The communications must be fail safe and occur in a timely manner so the crew(s) can utilize their escape routes(s) or modify work location
- D. Ensure communication up and down chain of command and with adjoining forces
- E. Check the communications for effectiveness before deploying ground forces
 - 1. Set and test the radio frequency to be used
 - 2. Update and provide additional frequencies as needed throughout the shift
 - 3. It is paramount that every firefighter receive the correct message in a timely manner
- F. Check communications again once lookouts and firefighters are in place
- G. Continued communication about safety during the shift must occur
 - 1. This only takes a few seconds and it is time well spent

Which method of communication is considered the most effective?



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<p>H. Controls must be established where line personnel are assigned to communicate pertinent information at specific times during the assignment</p> <p>I. CDF's air to ground frequency is a guard (priority) channel in all CDF aircraft</p> <ol style="list-style-type: none">1. If you need an immediate emergency drop, use this frequency2. On major incident, consult IAP <p>J. Remember! Timely communications are critical for ensuring a safe operation</p> <p>VI. ESCAPE ROUTES</p> <p>A. Establish escape routes prior to deployment of ground forces</p> <p>B. Always have at least two escape routes</p> <p>C. Continually update escape routes as the fire dynamics and crew location changes</p> <ol style="list-style-type: none">1. This is probably the most elusive component of LCES. The effectiveness changes continuously2. As a firefighter works along the fire perimeter, fatigue and spatial separation increases the time required to reach the safety zone <p>D. The most common escape route is the fireline</p> <p>E. Crews usually have the most difficult escape routes</p> <ol style="list-style-type: none">1. It is very important to constantly be aware of the difficulty for a crew to escape	<p>How can you get quick communication with an Air Attack or other CDF aircraft?</p>



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<ul style="list-style-type: none">2. Communications of adjustments and additions of escape routes for crews is criticalF. When Establishing escape routes, ensure the routes will facilitate the arrival of crews to safety zones in a timely mannerG. Once escape routes have been established, communicate location(s) to everyone who might need to use them<ul style="list-style-type: none">1. Specific color flagging identified as escape route marking2. Flagging marked "escape route" should be used to identify escape routesH. Night time operations may require special identification<ul style="list-style-type: none">1. Scouting of escape route2. Distance perception may be skewed at nightI. There is a time to run in the fire service<ul style="list-style-type: none">1. Run early, run hard, and run fast enough to ensure your safety route is viable and to beat the encroaching fire2. Utilize the best available escape route3. If you are utilizing an escape route, use the Air Attack to help you!<ul style="list-style-type: none">a) They can : obtain fixed wing & helicopter support, i.e., drops and evacuation4. Do not be afraid to drop equipment, packs, and tools when it is time to run!5. If packs are discarded, keep your shelter	



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<ul style="list-style-type: none">6. If you are not going to make the safety zone, find the best available deployment site and deployJ. Use vehicles to expedite escape routes<ul style="list-style-type: none">1. Dozers2. Engines3. Crew transports4. Utility vehiclesK. Fire line supervisors should be very specific when giving directives to mark escape routes and build safety zones<ul style="list-style-type: none">1. Who2. What3. Where4. When5. Why6. How7. Give the authority, responsibility and hold the responsible person(s) accountable8. Identify marker to be used	<p>What is the definition of a safety zone?</p>



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VII. SAFETY ZONES

- A. Safety zone = An area distinguished by characteristics that provide freedom from danger, risk, or injury
 - 1. Not a shelter deployment site
 - 2. A location where firefighters may find safe refuge from danger.
 - 3. Should be conceptualized and planned as a location where no shelter is needed
- B. Safety island = Safety areas progressively built during line construction by handcrews and dozers
- C. The use of safety zones is not intended for the firefighter to hesitate to deploy their shelter if needed or the use of a vehicle as a refuge
 - 1. When using a shelter one can equate it to a peace officer using "deadly force"
 - a) Use of a gun is the last option but when they pull their gun, the intent is to use deadly force
 - b) The same concept applies to shelters when the firefighter pulls the shelter as a last choice
 - 2. If a shelter is deployed, the location is not a true safety zone
 - 3. Use vehicles as a refuge if appropriate, when the encroaching fire blocks the escape route to the safety zone
- D. When choosing a safety zone consider
 - 1. Flame length is the major factor



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<ul style="list-style-type: none">a) Firefighters must generally know average flame length and judge the needed size for a safety zone based on this knowledgeb) They must be large enough to accommodate all crews in the area in case of burn over2. Natural and human made barriers3. Time needed to utilize escape routes to the safety zone4. The changing dynamics of current and expected fire behavior5. Updating and/or adding safety zones to ensure the viabilityE. Remember that , depending on the fire environment, structures can be safety zones	
<p>VIII. DAILY TRAINING</p> <ul style="list-style-type: none">A. Awareness of these four components must become a part of daily training sessionsB. We will respond to and perform on emergency incidents exactly the way we trainC. Training sessions must occur in similar environments as those faced on emergency incidentsD. If LCES becomes part of the daily routine, it will become a part of the incident and not an after thoughtE. <u>Everyone</u> is responsible for LCES	



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- F. Try to remember Lookouts, Communications, Escape Routes, and Safety Zones in this manner and not complicate the system
 - 1. Acronyms are nice but they create one more step to remembering the all too many items on the ever increasing safety lists
 - 2. One of the attractive features of this system is the simplicity and the incorporation of the essential elements of the 10 Standard Fire Orders
 - 3. Keep it simple but make it safe
- G. Continue to train on and monitor all safety practices
 - 1. The process of utilizing lookouts, communications, escape routes, and safety zones is not intended to replace other safety lists
 - 2. Continue to monitor the fire orders, situations which shout "watch out", and downhill fire line construction safety lists
 - 3. Utilize personal protective equipment properly
 - 4. Injury and Illness Prevention Programs must continue to be updated and reviewed for effectiveness
 - a) This includes making changes when new technology and concepts become available

Administer Topic Quiz



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SUMMARY:

The common thread between all fire fatalities and near misses in the past twenty years is lack of or inadequate lookouts, communications escape routes and safety zones. All four of these components, with all of their factors, must be present in order to provide a safe working environment.

EVALUATION:

The student will complete a written quiz at a time determined by the instructor.

ASSIGNMENT:

Review your notes and Student Information Sheet 4203.3-1 in preparation for the upcoming quiz. Study for the next session.